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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/757,909	01/10/2001	Steven W. Arms	1024-035	8315

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JAMES MARC LEAS
37 BUTLER DRIVE
S. BURLINGTON, VT 05403

EXAMINER	
TUGBANG, ANTHONY D	
ART UNIT	PAPER NUMBER
3729	

DATE MAILED: 01/14/2004

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/757,909	ARMS ET AL.	
	Examiner	Art Unit	
	A. Dexter Tugbang	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32 and 72-103* is/are pending in the application.

4a) Of the above claim(s) *4-26,72,73 and 101* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,27-32,72,74-100,102 and 103* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restriction

1. Applicant's election without traverse of the invention of Group IV, Claims 2, 3, 27-32, 73-100, 102 and 103 in Paper No. 14 is acknowledged.

2. Claims 4-26, 72, 73 and 101 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 15.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

4. Claims 1, 74, 75 and 103 are rejected under 35 U.S.C. 102(b) as being anticipated by Person et al 5,986,533.

Regarding Claim(s) 1, 74 and 75, Person discloses a method of making an electronic device comprising: providing an overall coil conductor (shown in Fig. 3E), an insulation (dielectric layer 72), a tube (either cap 12 or 13); forming openings (via holes 39, 49) in portions of the insulation 72 (in Fig. 3C) and exposing the conductors of the coil (shown in Fig. 3E) in the openings; dicing completely through the coil at cut marks 112 to provide a plurality of short coils where each coil has at least one opening in the insulation 72 (see col. 6, lines 7-13); and providing a movable core (shown in Fig. 1) within the tube (12 or 13) being capable of adjusting the inductance of the coil.

Regarding Claim(s) 103, any surface of the tube (12 or 13) can be read as the "outer surface" where the coil and insulation are on the outer surface when assembled and the claims do not recite any other surfaces of the tube, or any other relationship of the outer surface of the tube with any other surfaces of the tube.

Claim Rejections - 35 USC § 103

5. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Person et al.

Person discloses a method of fabricating an electronic device as relied upon above with Claim 1. Person does not specifically mention that the insulation is formed with polyimide.

However, the examiner takes Official Notice that insulation materials comprising of polyimide is old and notoriously well known in the art of manufacturing electronic devices for the benefits of supporting a conductor or coil. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Person by forming insulation material with polyimide to achieve the above well known benefits.

6. Claims 2, 3 and 100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Person et al in view of Lampe et al 5,903,207.

Person discloses a method of fabricating an electronic device as relied upon above with Claims 1 and 74, further including that the electronic device is an inductor. Person does not teach a wire, or an insulated wire, in which the wire is wound around the tube.

Lampe teaches an alternative way of forming a inductor including a wire 26, that is insulated with a dielectric coating 32 to form an insulated wire (see col. 4, lines 60-62), and is

wound a core to form an art recognized equivalent inductor that saves in manufacturing costs (see col. 1, lines 60+).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Person by forming the electronic device of an inductor in the alternative way, as taught by Lampe, to recognize the benefits of saving manufacturing costs and form an art recognized equivalent inductor.

7. Claims 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Person et al in view of Moyer 4,980,663.

Person discloses a method of fabricating an electronic device as relied upon above with Claims 1, 74 and 75. Person does not teach a structure of an electronically controllable clamp for resetting position of the core and a structure for holding a position of the core.

Moyer teaches a structure (board 31) capable of holding a position of the core of an inductor 20 and an electronically controllable clamp (shown in Fig. 16) with a spring or spring mechanism (see col. 5, lines 25-43) for the purpose of resetting the position of the core and achieve the desired electrical inductance (see col. 1, lines 7+).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modified the method of Person by including the electronically controllable clamp for resetting position of the core and the structure for holding a position of the core, as taught by Moyer, to positively achieve desired electrical inductance of the electronic device.

Regarding Claim(s) 31, it would have been an obvious matter of design choice to choose any desired alloy of the electronically controllable clamp since applicants has not disclosed that the claimed "shape memory alloy" solves any stated problem or is for any particular purpose and

it appears that the invention would perform equally well with the composition of material of the electronically controllable clamp taught by Moyer.

8. Claim 94 is rejected under 35 U.S.C. 103(a) as being unpatentable over Person et al in view of Jennings 3,785,046.

Person discloses a method of fabricating an electronic device as relied upon above with Claims 1, 74 and 75. Person does not teach enclosing the coil in a housing and hermetically sealing the housing.

Jennings (in Fig. 1) shows a housing 12 in which the electronic device, i.e. inductor, is hermitically sealed in a vacuum (see col. 2, lines 32+) to provide alternate configurations of inductors and save manufacturing costs (see col. 1, lines 63-68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Person by providing a housing and hermetically sealing, as taught by Jennings, to positively provide alternate configurations of inductors and save manufacturing costs.

9. Claims 95-99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Person et al in view Japanese Publication JP 60-124487, referred to hereinafter as JP'487.

Person discloses a method of fabricating an electronic device as relied upon above with Claims 1, 74 and 75, and further including that each opening is formed over a plurality of turns of wire or conductor material. Person does not teach forming the openings in the insulation by laser ablating the insulation.

JP'487 suggests that openings in insulation can be formed by laser ablation, or directing direct light of a laser on the insulation, to achieve a circuit pattern that is highly accurate (see Purpose and Constitution).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Person by forming the openings by laser ablation, as taught by JP'487, to positively form a circuit pattern that is highly accurate.

Regarding Claim(s) 97 and 99, it would have been an obvious matter of design choice to choose any desired type of laser and shape of the opening since applicant have not disclosed that the claimed "excimer" laser and "ring shaped" opening, solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the laser ablation and opening shape taught by JP'487 and Person et al, respectively.

10. Claims 76-80, 81-82, ~~86,~~ 92 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Person et al in view of Jones et al 5,265,329.

Person discloses a method of fabricating an electronic device as relied upon above with Claims 1, 74 and 75. Person does not teach providing a substrate and surface mounting the coil to the substrate.

Jones discloses a mounting method including a substrate 12 in which coils or inductors are mounted on the substrate (see Fig. 1) to provide an interconnection with a whole host of other electrical devices (see col. 3, lines 22+).

Regarding Claim(s) 77, 78, 81 and 82, Jones further teaches that the substrate is a printed circuit board with the conductors of the inductors being electrically connected to the substrate

and mounting additional electronics 30, 44, 48 on the substrate in which the additional electronics are connected to the coil or inductor.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Person by utilizing the mounting method of Jones, to positively provide an interconnection of the electronic device or inductor with a whole host of other electrical devices.

Regarding Claim(s) 79 and 80, the examiner takes Official Notice that providing a solder and reflowing the solder is old and notorious well known in the art of mounting electronic devices to substrates for providing the advantages of permanently providing electrical connections between the electronic devices and the substrate. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Person by including the solder for the well known benefits discussed above.

Regarding Claim(s) 92 and 93, the additional electronics of Jones inherently provides a voltage or current. The parameters of an excitation or ac waveform are considered to be effective variables to achieve a desired result through routine experimentation. *In re Aller*, 220, F.2d 454, 105 USPQ 233, 235 (CCPA 1955). Therefore, the limitations drawn to excitation or ac waveform have not been given patentable weight or would have been an obvious improvement over Person et al through routine experimentation.

11. Claims 83-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Person et al in view of Jones et al as applied to claims 1, 74-76, 81 and 82 above, and further in view of Jennings for the same reasons set forth in paragraph 8 above. It is noted that claimed "pins" in Claim 85 are read as contacts 14 in Jones et al.

Regarding Claim(s) 86, the inductor of Persons or Jones is inherently a sensor to the extent that each senses electrical current.

12. Claim 102 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al 5,265,329 in view of Person et al.

Jones discloses a method of fabricating an electronic device comprising: providing a substrate 12; surface mounting a component (anyone of 30 or 44) to the substrate 12; mounting additional electronics (conductive pads 14) on the substrate; connecting the additional electronics 14 to the component or anyone of the components 30, 44; and providing a housing 20 capable of holding anyone of the components, the substrate and the additional electronics (shown in Fig. 1).

Jones further teaches that anyone of the components can be an inductor (see col. 3, lines 22-26) that is surface mounted to the substrate. However, Jones does not teach the specific steps of a), b) or c) for the component.

Person teaches a component making process including steps a), b) and c) comprising: providing an overall coil conductor (shown in Fig. 3E), an insulation (dielectric layer 72), a tube (either cap 12 or 13); forming openings (via holes 39, 49) in portions of the insulation 72 (in Fig. 3C) and exposing the conductors of the coil (shown in Fig. 3E) for contacts; dicing through the coil at cut marks 112 to provide a plurality of short coils where each coil has at least one opening in the insulation 72 (see col. 6, lines 7-13). The component making process of Person is to manufacture a plurality of components, each component being an inductor including at least one coil, for the advantages of making a plurality of components smaller in parts and more economical (see col. 1, lines 35-44). Such components of inductors are to be subsequently surface mounted to a substrate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Jones by including the component making process Person, to advantageously manufacture a plurality of components much smaller in parts and more economical, and for the purpose of subsequently surface mounting the components to a substrate.

Response to Arguments

13. Applicant's arguments filed 10/20/03 (Paper No. 15) have been fully considered but they are not persuasive.

In regards to the merits of Person et al, the applicants contend that Person does not teach a tube outer surface and exposing the conductors in the openings. The examiner most respectfully disagrees to the extent that any surface of the tube (12, or 13) can be read as the outer surface and Figure 3C of Person shows the openings exposed to allow the conductors to be formed.

Allowable Subject Matter

14. Claims 87-91 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 9:00 am - 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3590 for regular communications and 703-305-3588 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

A. Dexter Tugbang
Primary Examiner
Art Unit 3729

January 12, 2004